WHAT IS CLAIMED IS:

- 1. A hydraulic system comprising a master cylinder
- with a housing; a piston arranged with axial mobility to slide
- in the housing; a pressure compartment inside the housing, said
- 4 pressure compartment being filled with a hydraulic fluid and
- 5 closed off by the piston; a piston rod connected to the piston;
- a sealing means arranged between the housing and the piston; a
- 7 slave cylinder; and a hydraulic fluid conduit between the
- 8 master cylinder and the slave cylinder; wherein an application
- 9 of force to the piston rod causes the piston to move in an
- 10 axial direction and to put the hydraulic fluid under pressure;
- and wherein the piston comprises a duroplastic polymer
- 12 material.
 - 1 2. The hydraulic system of claim 1, wherein the
 - 2 duroplastic polymer material comprises at least one component
 - from the group of materials consisting of melamine, phenolic
 - 4 resin, epoxy resin, unsaturated polyester, silicone resin,
 - 5 urea, and formaldehyde.
 - 1 3. The hydraulic system of claim 1, wherein the piston
 - 2 additionally comprises at least one material from the group

- 3 consisting of polytetrafluoroethylene, molybdenum disulfide,
- 4 and graphite.
- 1 4. The hydraulic system of claim 1, wherein the
- 2 duroplastic polymer material is reinforced with glass fibers.
- The hydraulic system of claim 4, wherein the
- 2 proportion of the glass fibers is substantially in a range
- 3 between 1% and 50% by weight.
- 1 6. The hydraulic system of claim 1, wherein the
- 2 duroplastic polymer material is reinforced with globular glass
- 3 beads.
- 7. The hydraulic system of claim 6, wherein the
- 2 proportion of the glass beads is substantially in a range
- 3 between 1% and 50% by weight.
- 1 8. The hydraulic system of claim 1, wherein the
- 2 housing concomprises polytetrafluoroethylene.
- 9. The hydraulic system of claim 1, wherein the piston
- 2 comprises a piston surface with a surface finish having an

- 3 average roughness substantially in a range between 0.1 μ m and
- 4 about 2 μ m.
- 1 10. The hydraulic system of claim 1, wherein the
- 2 piston comprises a piston surface with a surface finish having
- 3 a maximum-depth roughness substantially in a range between 1 μ m
- 4 and 10 μ m.
- 1 11. The hydraulic system of claim 1, wherein the
- 2 piston comprises a piston surface with a surface finish having
- a bearing ratio substantially in a range between 30% and 80%.
- 1 12. The hydraulic system of claim 1, wherein the
- 2 piston comprises at least one snifting groove.
- 1 13. The hydraulic system of claim 12, wherein the
- 2 piston has a front surface facing the pressure compartment and
- 3 the at least one snifting groove is arranged on said front
- 4 surface.
- 1 14. The hydraulic system of claim 13, wherein the at
- 2 least one snifting groove comprises a plurality of snifting
- 3 grooves distributed over a circumference of said front surface.

- 1 15. The hydraulic system of claim 12, wherein the at
- 2 least one snifting groove has a depth substantially in a range
- 3 between 0.5 mm and 1.5 mm.
- 1 16. The hydraulic system of claim 1, wherein the
- 2 piston has a bore cavity containing a ball joint that is
- 3 connected to the piston rod.
- 1 17. The hydraulic system of claim 1, comprising a
- 2 first end-stop plate that is arranged on the piston rod and
- 3 limits movement in a pull direction of the piston rod.
- 1 18. The hydraulic system of claim 1, comprising a
- 2 second end-stop plate that is arranged on the piston rod and
- 3 limits movement in a push direction of the piston rod.